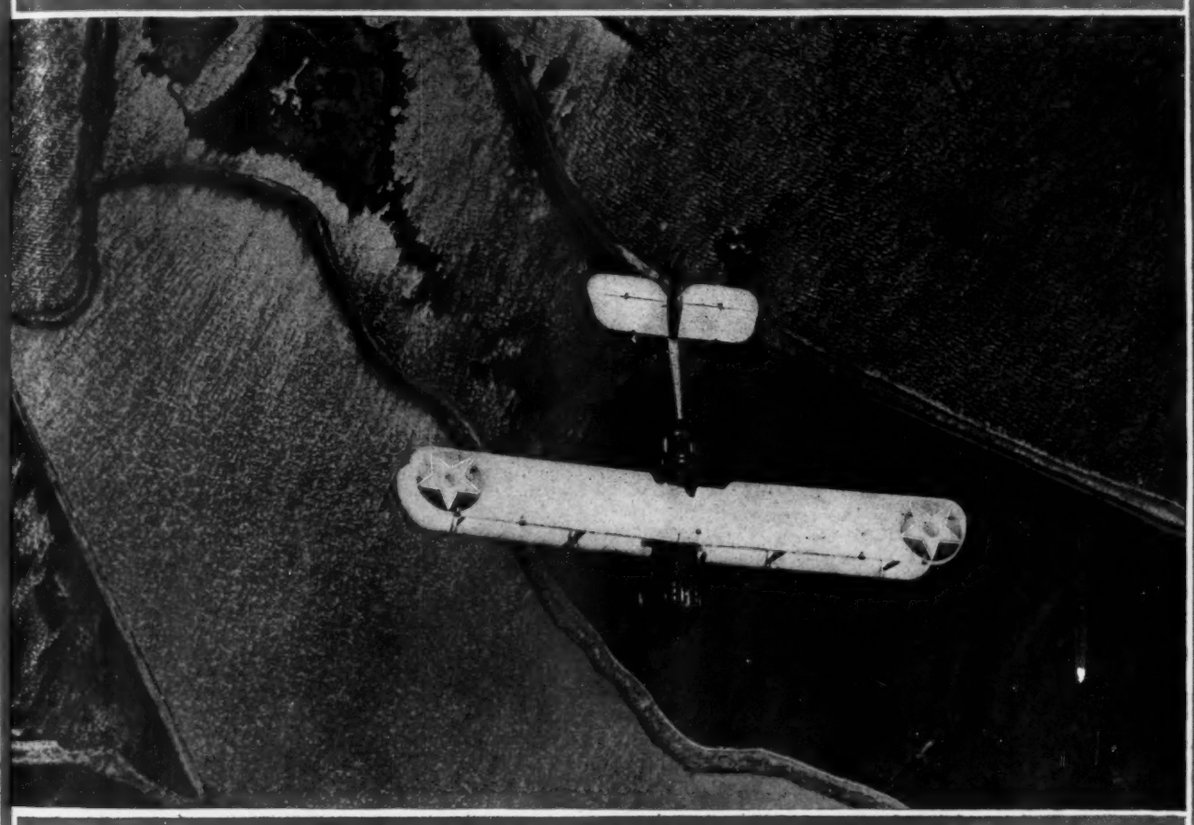
AVIATION

The Oldest American Aeronautical Magazine

AUGUST 18, 1924 Issued Weekly PRICE 10 CENTS



Air Service Photographic Plane Mapping the Salton Sea, Southern California

VOLUME XVII

NUMBER 7

SPECIAL FEATURES

THE AIR MAIL AND THE BANKER

FIRST HELICOPTER TO FLY A CIRCULAR KILOMETER

PROGRESS OF THE ROUND THE WORLD FLIGHTS

GARDNER PUBLISHING CO., INC.
HIGHLAND, N. Y.
225 FOURTH AVENUE, NEW YORK

Entered as Second-Class Matter, Nov. 23, 1920, at the Post Office at Highland, N. Y. under Act of March 3, 1879.

Trade Mark

For Human Locomotion

IN the "Outline of History", H. G. Wells writes that "by 1909 the aeroplane was available for human locomotion." It is an interesting coincidence that since 1909 exactly, The Glenn L. Martin Company has been building quality aircraft.

Without discounting the vital importance of airplanes in military and strictly governmental use, it seems certain that man's most useful exploitation of the air is destined to be as a medium for his own transportation in commerce and industry.

With this end in view, Martin Margins of Safety have not only been maintained since 1909 at an unusually high point, but are being steadily advanced today to new standards. Martin engineering practice is an ever-growing power for the improvement of human locomotion.

THE GLENN L. MARTIN COMPANY

CLEVELAND

Builders of Quality Aircraft since 1909

Aeronautical Instruments

LOOK THIS LIST OVER CAREFULLY

Higher prices maybe; lower prices never

The last of the Government surplus instruments. BUY NOW

PART NO.	DESCRIPTION.	PRICE.
2604	Air or gas pressure gauge 0 to 6 lbs.	2.00
2651	Altimeter Tycos 5″ luminus face 15000 ft.	3.00
2654	Altimeter Schneider 3″ luminus face 25000 ft.	10.00
2611	Banking Indicator Elliot bubble type 0 to 20°	2.00
2621	*Clocks 8-day rim wind luminus face	10.50
2618	Compass Durkee vertical type	15.00
2619	Compass Taylor pocket watch type	1.50
2690	Motor meter Boyce 16 ft. tube 2″ non-luminus face	10.00
2692	Motor meter Boyce 40 ft. tube 3″ luminus face centigrade	10.00
2693	Motor meter Boyce 20 ft. tube 4″ face luminus centigrade	10.00
2644	Tachometer NCR 0 to 2500 RPM luminus dial	10.00
2642	Tachometer Jones 500 to 2500 RPM luminus dial	10.00
2643	Tachometer Johns-Manville 500 to 2500 luminus dial	7.50
2645	Tachometer Jaeger 0 to 1000 RPM luminus dial	5.00
2649	Tachometer Jaeger 0 to 2000 RPM non luminus dial	5.00
2647	Tachometer Jaeger 0 to 2400 RPM luminus dial	7.50
2648	Tachometer Jaeger 0 to 3000 RPM luminus dial	7.50
2667	Shaft and cable to fit above tachometers 28″	2.50
2671	Shaft and cable to fit above tachometers 42″	2.50
2672	*Shaft and cable to fit above tachometers 6 ft.	5.00
2673	*Shaft and cable to fit above tachometers 7½ ft..	6.00
2668	*Shaft and cable to fit above tachometers 9 ft.	7.50
2669	*Shaft and cable to fit above tachometers 10 ft.	8.00
2683	*Adapter to use above shaft on Warner drive, straight	2.50
2681	Adapter to use above shaft on Warner drive, 1 to 2	3.00
2684	*Adapter to use above shaft on Jaeger tachometers	1.50
2630	*Oil gauges 2¾″ luminus face 0 to 120 lbs.	4.50
2635	Dixie two magneto switch	4.00
2637	*Berling single magneto switch Aluminum new type	4.00

NOTE: Articles with star (*) are new manufactured stock.

USED INSTRUMENTS

2602	Air gauge 0 to 5 or 10 lbs. 1¾″ non-luminus face	1.00
2651	Altimeter Tycos 5″ luminus face 0 to 15000 ft.	1.00
2650	Altimeter Taylor 3½″ luminus face 0 to 25000 ft.	3.00
2612	Banking indicator Sperry 2¼″ face round type	2.00
2696	Air Speed indicator Bristol 40 to 150 MPH	5.00
2697	Air Speed indicator NCR 40 to 160 MPH	5.00
2698	Air Speed indicator Foxoboro 30 to 120 MPH	5.00
2685	Petot head for NCR new	3.50
2686	Venturi tube for Bristol or Foxoboro new	5.00
2687	Venturi tube for Badin French type double throat	1.00
2688	Venturi tube for Jaeger French type single throat	1.00
170	Copper tubing 1/8″ 16 ft. lengths per foot	.15
172	Copper tubing ¼″ 12 ft. lengths per foot	.15
2615	Compass General Electric vertical Army type	10.00
2618	Compass RAF mark 11	5.00
2657	Tachometer Van Sicklen luminus dial 0 to 2500 RPM	10.00

Write for our complete list of used instruments for experimental work, consisting of gas gauges, tachometers, altimeters, etc.

JOHNSON AIRPLANE & SUPPLY CO.

DAYTON, OHIO

AUGUST 18, 1924

AVIATION

VOL. XVII. NO. 7

Published every Monday

CONTENTS

Editorials 885
The Air Mail and the Banker 886
First Helicopter to Fly a Circular Kilometer 888
National Air Policy Suggestions 889
World Flights 889
Light Planes and Gliders 890
Airports and Airways 891
U. S. Air Forces 893
Back Fires 894

GARDNER PUBLISHING COMPANY, Inc., *Publishers*

GENERAL AND EDITORIAL ROOMS: 225 FOURTH AVENUE, NEW YORK

Publication office

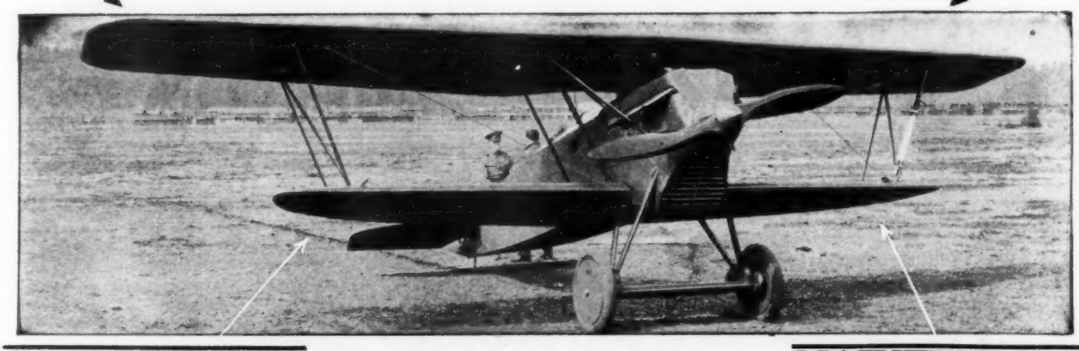
HIGHLAND, N. Y.

Subscription price: Four dollars per year. Single copies ten cents. Canada, five dollars. Foreign, six dollars a year. *Copyright 1924, by the Gardner Publishing Company.*

Issued every Monday. Forms close ten days previously. Entered as second-class matter Nov. 22, 1920, at the Post Office at Highland, N. Y., under act of March 3, 1879.

COST

QUALITY



PERFORMANCE

MAINTENANCE

THESE FOUR CARDINAL VIRTUES
HAVE NEVER BEFORE BEEN COMBINED TO SO GENEROUS AN EXTENT AS IN THE

BOEING PURSUIT

IN RECOGNITION OF THIS FACT THE UNITED STATES GOVERNMENT HAS INCLUDED A NUMBER OF THESE PLANES IN ITS PRESENT BUILDING PROGRAM

BOEING AIRPLANE COMPANY
CONTRACTORS TO UNITED STATES GOVERNMENT
GEORGETOWN STATION, SEATTLE, WASH.

What are you going to do this summer ?

STUDENTS AND INSTRUCTORS, CURTISS FLYING SCHOOL, GARDEN CITY, N. Y.

Why Not Spend a Couple of Profitable Months at

THE CURTISS FLYING SCHOOL

We teach you to fly, give you an airplane in good flying condition, with a new OX5 motor and instruct you in its care, for a total of $675.

An Exhilarating Sport — A Profitable Business

YOU WILL NEVER HAVE ANOTHER SUCH OPPORTUNITY OF BECOMING ASSOCIATED WITH AVIATION

Machines available at all times for Commercial Flying—Air Photography — Map Making — Fast Cross Country Transportation — Taxi Service.

BIG PRICE REDUCTION ON ALL SURPLUS MATERIAL

Write for Booklet

CURTISS EXHIBITION COMPANY

CLINTON STREET, GARDEN CITY, NEW YORK

Curtiss

STANDS FOR SPEED WITH SAFETY

L. D. GARDNER
PRESIDENT

L. D. WEBSTER
TREASURER

GEORGE NEWBOLD
BUSINESS MANAGER

AVIATION

LADISLAS D'ORCY
EDITOR

VIRGINIUS E. CLARK
EDWARD P. WARNER
RALPH H. UPSON
EDMUND T. ALLEN
CONTRIBUTING EDITORS

VOL. XVII AUGUST 18, 1924 No. 7

Civil Transport Planes and Military Bombers

THE pertinent and perrenial question of whether a plane which is suitable for the transportation of passengers can be converted into a military bomber was the subject of a recent speech made by Mr. Laurent Eynac, the French Under Secretary of Aeronautics, before the Aero Club of France. The salient passages of the speech are as follows:

"Commercial aviation and military aviation, since the separation of 1919, have been following along different lines of development. Actually one can only make a poor bomber out of a civil transport plane and vice versa. In military aviation one must climb very high and fast and the flying speed must also be great. The plane must have a ceiling of eight or nine thousand meters; the cruising speed must be at least 250 kilometers per hour. Until proof to the contrary, high fuel consumption and power are of no importance. The longer or shorter life of the motor is unimportant. It is a race for the mastery of the air.

"In civil aviation there is a constant search for economy; each year the ceiling becomes lower; it will probably be fixed at 3,500 meters which permits the planes to pass over the mountain passes of Europe. Efforts are also made to get the maximum power out of the fuel used, and finally, the commercial ship is satisfied with cruising speeds of 180 kilometers per hour.

"The French commercial air fleet at this time has about more than 200 ships, some working for the mail, others carrying passengers and freight. It also has nearly two hundred proved, hardy and experienced pilots.

"To make these machines and pilots return to the military ranks would be an unpardonable mistake. If war should break out in the four corners of Europe and in Africa, would it then be necessary for us to abandon the position which we gained by our communications with the North of Africa and with Central Europe?

"Decidedly no. The communications between France and Northern Africa and between France, Czechoslovakia, Poland and Roumania would go on as at present. They would be of the greatest use to us and the small benefit which we could derive from the use of commercial planes transformed into semi-military planes would not make up for the great loss which we would inevitably suffer from having suddenly discontinued our commercial air routes to Northern Africa and Central Europe."

From Calcutta to Paris

THE distance from Paris to Calcutta is some 6,000 miles along the line which was followed this year by the Americans, the French and the Argentine fliers, while the route of the British was somewhat longer. Although there was in no way a race between the two cities, yet the Frenchman was trying to establish a new record to Japan, and the Americans and Argentines were trying to make up for lost time so they were all doing their best to make speed. A study of the time taken by the various participants is therefore of much interest. The fastest time was twelve days, made by Captain d'Oisy in a Bréguet plane. Major Zanni, the Argentine, took thirteen days in his Fokker. The Americans in the Douglas planes took fourteen days. The Britishers in their Vickers amphibian were considerably delayed by motor trouble and took fifty-two days.

The Frenchman and the Argentine started out untired by previous days of hard flying, their machines were new and in perfect condition and both of them had a cruising speed of well over 100 mi./hr. with plenty of reserve power. The Americans had already flown almost half way around the world, their equipment and themselves had stood the strain of the change from Arctic to Tropic conditions, they were flying in formation, which gave three times the opportunity for delay and trouble. Furthermore, they were going against the prevailing winds in machines that carried heavy loads and cruised at only 75 mi./hr. The motors in all the planes were changed at Karachi, the work being done mostly by the Americans themselves and using up three days. The desire of the Turks to inspect the machines lost the fliers another day. In view of all this the performance of the men who composed the American squadron is extraordinary almost beyond belief. Incidentally, the Americans made the best time from Tokyo to Paris, but here a comparison is hardly fair, as the Frenchman was using inferior equipment after his accident in Shanghai.

Lack of Ideas

SCATTERED from Maine to California and from Florida to Oregon are the Old Time Aviators, men who have been in the commercial flying game for years, and know there is nothing in it, and who none the less cannot break away from it. Their roseate dream of the quick growth of aviation has turned to the dull gray of the far distance. Propose to them a new idea and they will say: "Oh, I tried that in 1918, it won't work." When pressed for new ideas, they admit that they used to have them but they are not bothered by them any more. They have tried all paths and all paths have faded out in the confusion of failure.

It is peculiar to speak of an aviator who has no new scheme which will bring about the immediate era of commercial aviation, but the truth is that all the old timers who had ideas have either been eliminated or have modified their enthusiasm for ideas. The elimination of hair brained schemers and hopeless optimists is in a way healthy, but there is grave danger that many will not realize that greater knowledge, new equipment and changed conditions will sometime make ideas that have been impractical in the past become possible in the future. Commercial aviation is in a rut: it will take good judgement and initiative to steer it out.

The Air Mail and the Banker*

The Service which the Air Mail Can Render to the Financial Interests

For me to attempt to talk to a group of men in the banking business is, I fear, a little bit of an incongruity; my knowledge of banking being limited to a few more or less successful attempts to borrow money and occasional notices of overdrafts.

I think, however, that I do know enough, generally speaking, of the profession in which you gentlemen are engaged to state with definite certainty that the Post Office Department is now able, through the Air Mail Service, to offer you something which will be of very practical benefit. You all know more or less of airplanes; you know that they fly fast and probably some of you believe that, being known during the war mostly as weapons flown by daring young men, they have nothing to offer to finance, commerce and industry in the way of everyday business service. It is this belief, if it exists at all—which the Post Office Department is displacing through demonstration and performance. In other words, high speed navigation of the air is neither primarily destructive to property nor dangerous to life, but actually a means to greater human efficiency and dominion.

Brief History of the Air Mail

As far back as May, 1918, the Post Office Department became interested in transporting the mails by air, but it was not until the Harding-Coolidge administrations that a deliberate effort was made to develop the Air Mail to the double end of substantially quickening communications and of firmly establishing American aviation, of whose brilliant experimental performances you have heard so much, upon a practical, commercial basis, thereby serving the business public and conserving to the nation as a whole, a key military industry.

It has been my privilege to assist in this development. Last August we placed in trial operation the first night airway in the world. Our transcontinental line is 2680 mi. long. Being literally pioneers in a new art, we naturally chose that part which offered us the least obstacles in flying by night—885 mi. between Chicago and Cheyenne. Our trials were so successful that Congress authorized us to proceed with a permanent seven-day-a-week, day and night service between the Atlantic and Pacific Coasts. Westbound we cover the 2680 mi. in 34 hr. 45 min., eastbound in 32 hr. 5 min. elapsed time. The fastest railroad time ranges, according to connections, from 96 to 120 hr.

Our airplanes have flown over 2,000,000 mi., much of it by night without a fatal accident. In the same period the ratio of mail destroyed to mail safely transported has been 120 lb. to 360,000 lb. A pound averages forty letters, so you see that out of 14,400,000 letters carried, but 4,800 were lost. This is a record proportionately far more reliable and secure than any other means of transportation, even though vastly larger quantities are involved.

97 Per Cent Efficiency

It will interest you to know that, in the last year, our operating efficiency has been 97 per cent. That is, only 3 per cent of air trips scheduled were uncompleted or defaulted. We have operated in all sorts of weather, and while we have to contend with the elements to a greater degree than surface transportation, we are at the same time free from some of the troubles these other systems experience. Our right of way, for instance, is mobile. It can never be washed out. And if storms appear before us, forewarned by radio, we surmount or circumvent them. Our lighting system consists of 500,000,000 candle power beacons every 200 mi., 5,000,000 candle power beacons every 25 mi. and 5,000 candle power lights every 3 mi. Landing fields on the night stretch are only 3 mi. apart.

When the first transcontinental mail was established—about the period of the Mexican war—stagecoach, canal and pony rider were employed, and the journey required months. Had the Post Office Department been able then, by some leap of science, to introduce aircraft, the bankers, manufacturers and merchants of that day would have felt no need for the service. Population had not expanded. Great cities 500 to 1000 mi. or more apart were unbuilt. In brief, business had not grown nor had transportation itself developed, to such a degree as could appreciate and utilize speed.

The Department is more conscious of the modern demand for speed than you may imagine. The telegraph and the radio have educated the public to demand the fastest possible communication. The trend of many lines of business has been toward operating through scattered branches from the central executive office. The expansion of advertising has transferred the sales market from a local to a national field. And banking, anticipating these changes, has passed into that period which makes it imperative, for sheer reasons of saving money, to save time in every conceivable way. Thus you have telegraphic balances, some of you have courier service, and all of you, particularly in your transactions between the larger cities, have sought out and utilized, the fastest railroad trains.

I welcomed the invitation of the Illinois Bankers' Association to appear here today in order to urge you, as bankers, to investigate the possibilities of the Air Mail in its application to your particular business. If it is true, as I am told by men in your profession, that time is the genius of banking, that checks, negotiable paper and money in transit are, for the time of their transit, lost to the use of the people, then most certainly this new service, which will save two or three days on Coast mail, and varying lengths of time in other connections, will undoubtedly appeal to you gentlemen as something which will be of practical help.

What the Banks Could Save

I think it would be interesting at this point to refer to a survey of the subject which was made recently by the Aeronautical Chamber of Commerce, and copies of which I have just received (see appended tables). The Chamber enlisted the assistance of other organization members of the Chamber of Commerce of the United States. The Chicago Association of Commerce reported that, upon figures provided by the Federal Reserve Bank of Chicago, 50 per cent reductions in time by airplane which are quite feasible, would reduce the daily float $10,289,000 and save approximately $504,450 annually in interest charges alone. The Merchants Association of New York City reported a daily float reduction of $16-191,780, and annual interest savings through air mail, of $809,589. Similar reports were received from many other points, including the Federal Reserve Cities, but the two instances cited are sufficient to indicate what may reasonably be expected from the Air Mail when it reaches more of the principal centers of finance and industry.

The Air Mail now operates over a generally straight line from New York to San Francisco, touching Cleveland, Chicago, Omaha, Cheyenne, Salt Lake City and Reno. The Air Mail Schedule at these points calls for stops of 15 or 20 min. These stops were designed to make possible interchange of mail with the Railway Mail Service. Our Traffic Department is now engaged in further coordinating the two services so that, with certain adjustments in preparation, it will be possible to assure a closely knit combined service in the belt 500 to 1000 mi. north and south of the line of flight, and including such important cities as Boston, Philadelphia, Baltimore, Washington, Pittsburgh, Buffalo, Cincinnati, Indianapolis, Louisville, Detroit, Milwaukee, Minneapolis, St. Paul, St. Louis, Kansas City, Denver, Los Angeles, Portland and Seattle.

Wherever a letter can travel for 300 mi. or more by air on its journey, its ultimate delivery should be proportionately

quickened. It is quite feasible, even now, to reach Denver between business days. Air time from Chicago to New York is 8 to 10 hr. as against 20 hr. by train. Between Chicago and Salt Lake City letters have been flown in 20 hr., from the desk of the sender to the desk of the recipient, as contrasted with three days by train. To the Pacific Coast from Chicago the Air Mail can save you two days.

Adjusting one of the 250,000 c/p searchlights with which the night flying air mail planes are equipped

The crux of the whole Air Mail operation across the United States is our ability to fly by night. Nobody except the Air Mail has ever operated airplanes on schedule over any substantial length of route at night. Coincidental with this night flying development, as a part of the transcontinental service, we have also opened up for future use and proven conclusively the practical nature of night operation, so that, as the service proceeds, I am ready to say to you without fear of failure, it is entirely feasible to operate aircraft at night between any two important cities where the distance is approximately 1000 mi. In other words, it is entirely possible to bring mail over here from New York, or to take it there, while the banker sleeps. This we can and will do if you want it done.

Because I am a Chicago man I may be pardoned for recalling that Chicago is the transportation center of the United States. It became so partly through its fortunate geographical location, but more so because of the vigor, initiative and persistence of the business leaders of the city. Can you visualize the next step? With a compass draw a circle around Chicago, 1000 mi. from center to circumference. See what it encloses: two-thirds of the United States and the richest agricultural and manufacturing areas in the United States and Canada.

Services of the nature of the Air Mail are not developed by accident, and their expansion does not come about except as the result of an active appeal from the business men of the country. The Post Office Department is ready to do its part in the matter of more extended use of airplanes in Mail Service whenever and wherever sufficient demand is created. This demand will only come if the service which we have started has a real place in the economic picture of this country. I believe that it has. You gentlemen, however, are much better judges of that than am I. All that is my privilege is to tell you what we can do. It will be for you to say whether the Air Mail is a service which you want to continue and expand.

*Address delivered by Col. Paul Henderson, Second Assistant Postmaster General in Charge of Railroad, Steamship and Air Transportation of the United States Post Office Department, at Luncheon of Illinois Bankers Association, Union League Club, Chicago, Thursday, July 10, 1924.

Trial Flights of ZR3

Trial flights of the dirigible ZR3, which is being built at Friedrichshafen, Germany, for the American government, will begin on Aug. 25, according to present plans of the Zeppelin company as reported in an Associated Press despatch from Friedrichshafen.

Installation will be undertaken within the course of the next few days of the new Maybach engines which, it is announced, have satisfactorily responded in exhaustive endurance test runs. After the engines are in place the airship will be inflated.

FINANCIAL CHART OF CHICAGO FEDERAL RESERVE BANK

Prepared for Aeronautical Chamber of Commerce of America by Industrial Bureau, Chicago Association of Commerce.

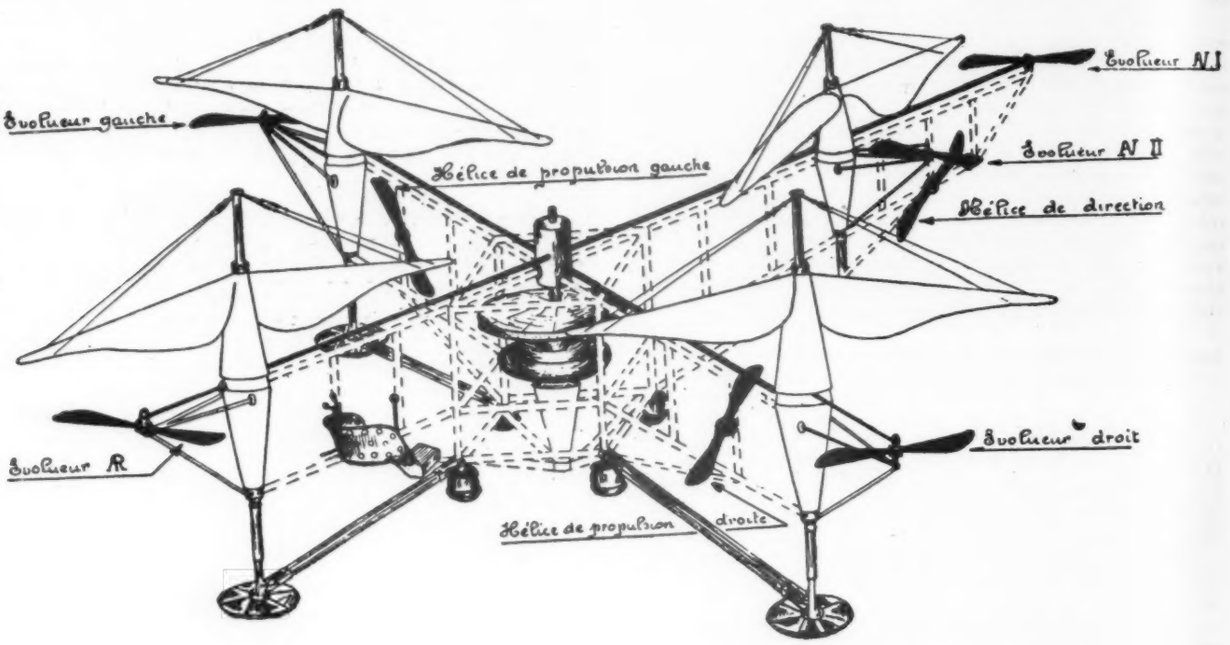
Col. 1	*Col. 2*	*Col. 3*		*Col. 4*	*Col. 5*	*Col. 6*
Cities with whom most of Chicago's business is conducted	*Distance from Chicago*	*Approx. average DAILY sendings from Chicago Federal Reserve Bank except cities now reached in one day by rail*	*Time schedule showing number of days before proceeds of items will become available* By Railroad	By Airplane (estimated)	*Average daily amount in process of collection*	*Amount saved through Aircraft Service*	*Annual Amount of interest saved on Col. 5 Float Reduction at 5%*
Boston	1,011 mi.	$ 600,000	2 days	1 day	$ 1,200,000	$ 600,000	$ 30,000
New York	909 "	3,230,000	2 "	1 "	6,460,000	3,230,000	151,500
Buffalo	513 "	117,000	2 "	1 "	234,000	117,000	5,850
Philadelphia	817 "	915,000	2 "	1 "	1,830,000	915,000	45,750
Cleveland	339 "	—	1 "	1 "	—	—	—
Cincinnati	285 "	—	1 "	1 "	—	—	—
Pittsburgh	468 "	482,000	2 "	1 "	964,000	482,000	24,100
Richmond	865 "	265,000	2 "	1 "	530,000	265,000	13,250
Baltimore	782 "	118,000	2 "	1 "	236,000	118,000	5,900
Atlanta	733 "	125,000	2 "	1 "	250,000	125,000	6,250
New Orleans	920 "	135,000	2 "	1 "	270,000	135,000	6,750
Birmingham	654 "	68,000	2 "	1 "	136,000	68,000	3,400
Nashville	445 "	95,000	2 "	1 "	190,000	95,000	4,750
Jacksonville	1,083 "	53,000	3 "	1 "	159,000	53,000	2,650
St. Louis	286 "	—	1 "	1 "	—	—	—
Little Rock	635 "	65,000	2 "	1 "	130,000	65,000	3,250
Louisville	306 "	—	1 "	1 "	—	—	—
Memphis	527 "	201,000	2 "	1 "	402,000	201,000	10,050
Minneapolis	421 "	1,032,000	2 "	1 "	2,064,000	1,032,000	51,600
Helena	1,541 "	2,000	3 "	2 "	6,000	2,000	100
Kansas City	454 "	—	1 "	1 "	—	—	—
Denver	1,026 "	180,000	2 "	1 "	360,000	180,000	9,000
Omaha	488 "	342,000	2 "	1 "	684,000	342,000	17,100
Dallas	965 "	249,000	2 "	1 "	498,000	249,000	12,450
El Paso	1,100 "	16,000	3 "	2 "	48,000	16,000	800
Houston	1,200 "	126,000	3 "	2 "	378,000	126,000	6,300
San Francisco	2,261 "	230,000	4 "	2 "	920,000	460,000	23,000
Seattle	2,186 "	131,000	4 "	2 "	524,000	262,000	13,100
Spokane	1,847 "	39,000	4 "	2 "	156,000	78,000	3,900
Portland	2,263 "	87,000	4 "	2 "	348,000	174,000	8,700
Salt Lake City	1,515 "	65,000	3 "	2 "	195,000	65,000	3,250
Los Angeles	2,231 "	417,000	4 "	2 "	1,668,000	834,000	41,700
		$9,385,000			$20,940,000	$10,289,000	$504,450

First Helicopter to Fly a Circular Kilometer

Meets Test Imposed by French Air Service

We are indebted to L'Aeronautique *for the following account by Etienne Oehmichen, pilot and inventor of the Oechmichen helicopter which was accepted by the French government after having completed a circular kilometer. The machine was described in detail in our issue of April 9, 1923.—Editor.*

The apparatus which has permitted me to make the first circular kilometer in a helicopter is the one with which I made the first fixed point flight of five minutes in May, 1923, and which has since been the subject of several modifications to adapt it to forward flight and to improve its stability in a wind.



Details of Oehmichen Helicopter which has been accepted by the French Air Service

It consists of four principal propellers, a system of five "controllers" or stabilizers which are propellers of variable and reversible pitch whose diameters are, respectively, 1 m. 45 for the three longitudinal controls, and 1 m. 55 for the two transverse controls. Two propulsion propellers with fixed pitch and a diameter of 1 m. 40 are driven by belts. These are placed on either side of the central cage and about half way out on the frames which support the lifting screws. They are, however, considerably below the lifting screws.

To the landing system has been added a double skid placed in front for the purpose of reducing the shocks of landing on the front part of the machine, as such shocks are increased by the full weight of the helicopter.

The apparatus weighs approximately 1000 kg. in running order. The main propellers turn at 145 r.p.m. and the load is approximately 33 kg. to the square meter.

I consider this apparatus simply as an experimental job, built to lend itself easily to alterations, especially insofar as the stabilizing and propulsion apparatus is concerned. It is more a flying laboratory than a practical aviation apparatus.

I have gathered, during the course of my methodic experimenting and nearly 450 flights, a series of invaluable data, especially with reference to cross winds, the influence of the ground and that of forward motion.

The apparatus is actually very maneuverable. Turns are easily accomplished, but there is noticed sometimes, especially during the course of flights in bumpy weather, a certain sluggishness in turning, which indicates the necessity for even more powerful controls. This only applies for changes of direction of from 90 to 180 deg., the turns of 45 deg. are accomplished on the slightest movement of the controls.

I have therefore particularly studied the question of turns and since the month of October, I have made about forty circular flights of an average length of from 600 to 700 m. The precision of the landings has always been considerable.

During the course of the trial, the principal and practically the only difficulties came from the motor, whose excessive vibration produced accidents of all kinds. Besides, sudden stoppages due to bad cooling, forced me often during the course of a flight to suddenly lose height and to touch the ground with one or more of the landing skids, which disqualified me from counting the circuits made as a continuous flight.

I was able during the course of the winter to make several important circuits, one of 1850 m. touching only once with the rear skid, but I had never succeeded in making the circular kilometer without stopping or touching.

On May 4, at 7:30 p. m., in the presence of Mr. Chollat, official delegate of the Service Technique de L'Aeronautique, I made a trial flight in a closed circuit. Though the atmosphere was calm a few gusts still lingered and gave a little motion. In spite of this I brought the apparatus back to the starting point of the prepared circuit, which was a triangular course of 1 km. marked out by stakes. The apparatus, oscillating between one and three meters, flew the first two sides of the triangle correctly but the third corner stake was widely passed by, as at that time the machine showed a certain sluggishness in turning. This brought me over a strip of deep ditches and small gullies, seeing which I gained altitude which allowed me to make my corner rapidly and get on the course again.

The last leg of the triangle was flown very rapidly at an elevation of one or two meters and with a slight turning to the left. The landing point, which was rather hard to see through the maze of tubes and wires, was pointed out to me by the men of my crew, one of whom, running along in front of the machine, showed me with outstretched arm the proper course. I soon passed him and a few seconds after I set the apparatus down a little less than 2 m. from the point of departure.

This apparatus has now terminated its career and fulfilled exactly the conditions imposed by the Service Technique de L'Aeronautique, to whom it is destined. I expect to use it to get a few figures which I still lack.

The apparatus which will follow will attack the problem of security, that is, a descent with the motor stopped, and will have the benefit of the previous experience.

National Air Policy Suggestions

Below are some of the suggestions received for a national air policy.

"I think the first step in a National Air Program is the establishment of an air "ministry" in our government. This department should be given absolute control of all things aeronautical, insofar as the government is concerned. Competent officials at the head of such a department would insure: A sane program of aircraft development; a civilian charged with the championing of a national air policy in the government who would, in turn, look out for civilian interests in legislative discussion, who should be charged with rendering complete and accurate expense data; appointment of competent air officers to head different air arms, one procurement agency for the government; intelligent development and experimentation; *the elimination of duplication;* more facilities and more money for Air Mail development; the establishment of a National Airway System; the efficient construction of, passage, and administration of air law; a greater realization of the necessity of international cooperation in air matters."

* * *

"The crying need of the hour seems to be landing fields, Government owned or at least tax free. Every city of ten thousand or more should have one. When away from his home fields the average civilian flier's life consists of being chased from one cow pasture to another. I have about quit flying for that one reason.

"There are other important needs such as quantity production of cheaper ships of interchangeable parts, sold unassembled and uncovered, to be built by purchaser. The saving thus effected in transportation charges and labor should easily amount to one half the total cost and the owner would know considerably more about his ship. But on the whole there is nothing needed like the landing fields, lots of them, free, except for hangar space. The rest will follow as a natural result and I know of no way of creating a more efficient, more permanent or cheaper civilian reserve upon which the nation can draw in time of war or that would be of more value in time of peace."

* * *

"What this country needs most is less differences of opinion and a shoulder to shoulder solidarity of flying interests. Until then, no air policy seems possible. If the N.A.A. would take the leadership in Washington and get everyone behind it, much could be accomplished. As it is there is nothing being done and aviation in this country is slowly dying. The points suggested are all good but until we have some organization to push them there is little hope."

* * *

"Why don't you include in the National Air Policy a strong statement that we should have an independent Air Force like Great Britain ? This is what will eventually come so why not be among the farsighted pioneers and come out for it now

"The Army and Navy are doing just as little for aviation as they dare. They think of it in terms of aids to their other work and not as a new armed force that can act independently and as a separate arm.

"Every country that is thinking of aerial defense and offense is coming more and more to the idea of centralizing its air forces. Let us have a civilian head by all means but let him be placed at the head of a separate department.

"The other points in your suggested National Air Policy would all be strengthened thereby."

American World Flight

On Aug. 5 Lieutenants Smith and Nelson, the remaining American fliers, resumed their flight reaching Reykjavik, Iceland, a distance of 310 mi. in 4 hr. 58 min. The weather was clear but they encountered strong head winds. The next stop of the aviators was supposed to be Anmagsalik, Greenland, but due to ice floes the Danish steamer Gertrude Rask has been unable to reach the harbor with the necessary stores of gasoline and oil. The waters off the Greenland coast are usually negotiable until September, but conditions this summer are the worst in twenty years and the Navy may have to withdraw their patrols. There seems to be no other harbor

Capt. Charles Nungesser, the famous French Ace. A Radio interview by the publisher of AVIATION

short of Ivigtut which is too far to be made in a single flight.

Further reports show that Lieutenant Wade's ship was so badly damaged that it had to be abandoned. However a new Douglas plane is being flown to Pietou, Nova Scotia, and Lieutenant Wade will fly across the United States with his two companions.

End of British World Flight

Fog so thick that the fliers could not see the end of their wings proved the undoing of Major Maclaren and his companions, Flying Officer Plenderleith and Lieut. Colonel Broome. After narrowly missing Sealime Rock, which is an island on their course, the fliers decided to land. As a high sea was running the wing tip floats were damaged and it was only with the greatest difficulty that the aviators taxied to an island which was sighted when the fog lifted for a few moments.

Argentine World Flight

Maj. Pedro Zanni and his mechanic Felipe Beltrame reached Calcutta on Aug. 8. The machine being used by the Argentinian is somewhat similar to the Fokker C4 which was described in our issue of March 24, 1924, except that it is fitted with the 450 hp. Napier Lion motor. The flight is backed by the Argentine Military authorities. A new plane fitted with pontoons will be used for the flight across the Pacific but when the flier reaches America he will again use a land machine. A special "mystery" ship will be used for the Atlantic flight.

Wants Japanese World Flight

As a gesture of protest against the American Exclusion act a Japanese octogenarian has given 100,000 yen ($50,000) to the Army Aviation Service, requesting that it be used in promoting a round-the-world flight by Japanese airmen, according to a Tokio despatch.

LIGHT PLANES AND GLIDERS

Edited by Edmund T. Allen

A Race of Flying Men

While France, England, and the United States are each claiming to be leading the world in aviation, each one is bending its efforts in a slightly different direction. France has without doubt by far the largest and most powerful air force in the whole world; England is supreme in the production of service machines to fill every demand; and the United States has perfected racing and record-breaking planes until we now hold two-thirds of the world's records.

Light plane honors have thus far gone to England, which has produced more serviceable small engined types than either France or Germany. The Tour de France des Avionettes to be held this month across the channel may make things look very differently. We are open to conviction on this matter. But at present all eyes are turned toward the coming British Competition for two seater light planes with more than usual interest. On its success depends the carrying out of plans which have as the ultimate goal a very great increase in the number of available airmen. This ambitious plan has the backing of the Duke of Sutherland, who made a tour of this country a short time ago, and of Lord Thompson. Definite details have been prepared by the Air Ministry, at whose direction the light plane competition is being held, and the whole scheme is now merely awaiting Treasury sanction.

The details are not as yet available to us but in general the scheme makes provision for the establishment and subsidy of numerous flying clubs throughout the country. The Air Ministry will approach municipalities and other civil bodies with the offer of cooperation in the formation of clubs for training pilots and keeping them in training on light airplanes. Each club is to be allowed to select its own type from those appearing at the coming two seater competition. The government will then place orders for three two seaters and two single seaters for each club, and will further furnish a grant for their maintenance.

Transferring the idea to this side of the Atlantic, we could imagine a flying club composed of some fifty members in almost every locality where one or two pilots could be found to start the ball rolling. Each club with its five or six club light planes, quickly added to by the personal acquisitions of its members who wished greater independence, could with a little help from the federal government maintain a local flying field with hangars and equipment. Thousands of young men who would make excellent pilots and whose greatest ambition is to learn to fly would be given the opportunity without interfering with their school work or business, and old pilots who have not had their hands on a stick for months or perhaps years, could get into the air as often as the spirit moved them.

At the close of the war there were 17,000 pilots trained or in training in this country. Today there are not any more than that number, the additions to the ranks have not more than made up those who have dropped out. Seventeen thousand pilots among 100,000,000 people; one out of every 6,000 ! There is not much chance of increasing this proportion very materially while airplanes cost $5,000 apiece and upkeep is such as to seriously embarrass a man of modest means. With light planes, however, the possibilities at once open up visions of many thousands of pilots trained every year, thousands of new airplanes constantly being built, with the corresponding increase in development and research work which, in the automotive industry has made the modern automobile in 20 years of improvement the fool-proof mechanism which it is today. Here is a way to the realization of the ideal to *make Americans a race of flying men.*

Straight ahead lies work, careful preparation, and wise direction of energy. Then pep—aviation enthusiasm, the steam that drives the engine.

We have no Air Ministry in this country, and no office to correspond. The Army Air Service or the Naval Bureau of Aeronautics have nothing to do with civil aviation except to order military or training airplanes from civilian manufacturers. These machines may be used only by enlisted or commissioned personnel of the Army and Navy or of the Reserve Corps. There are no funds to finance undertakings other than those of immediate war value. It is not inconceivable that Congress may some day see in a large civilian flying personnel a measure for defense of inestimable value. That is not, however, the reason for urging a program of civilian flying training. A race of flying men is a race of superior men. We believe this to be true.

Two other organizations, the Reserve Corps and the Militia, have been proposed to take charge of an elaborate and extensive program such as that outlined above. The Reserve Corps of Army, Navy, and Marines are so limited in the scope of their operations by lack of funds that they can call to active duty but one tenth of their numbers each year for two weeks active training. Theoretically, any reserve officer can fly at any time if he presents himself at a flying fields, successfully passes a rigid physical examination, and can show that he is capable of handling a machine in the air. Actually it is extremely difficult for the majority of the former pilots who joined the reserves to get a hop. In most instances, after all the preliminaries are sucessfully overcome, it develops that there are no available machines for reserve pilots.

The militia is a state organization. Twelve state National Guard organizations now have Air Service units that are recognized by the Federal Government. This means that by authority of act of Congress the Army Air Service is allowed to issue *obsolete* equipment such as Jennies, tent hangars, etc. to them *provided* they can show that such obsolete equipment is no longer needed by the Air Service. At present the supply of obsolete equipment which is not at present needed by the Air Service is practically exhausted.

Larger Scope for N.A.A.

Finally we have the National Aeronautic Association, whose functions are stated in the by-laws of the organization to be "to foster, encourage and advance the science of aeronautics .... and of aerial navigation of every kind.... To kindle and keep alive a general interest in the art of flying and to lend its aid and encouragement to any person, body or institution which is engaged or interested in advancing this art .... To establish, maintain and conduct, and also to lend its support and financial aid to scientific societies, clubs, classes, schools.... and other institutions engaged in.... promoting the study or advancing the science of aviation...."

In the absence of a cabinet department for the air, the responsibility devolves upon this organization to carry out its program. That this is not to be done entirely by staging high speed races and securing foreign entries is beginning to be realized generally. Races of aerial torpedoes, it has been remarked before in these columns, are spectacular. They bring aviation into the headlines, and eventually, perhaps, operate to induce Congress to appropriate greater funds for the building of our aerial defense; but the sight of a human skyrocket hurtling around pylons at 260 mi./hr. does not bring aviation one whit nearer into the lives of the people. The man in the street will tell you that every time he sees a high speed air race he thanks his stars that he is going home by rail and not by air.

If all this energy were put in a constructive program such as is suggested above, ways and means of securing funds and arranging details would be found, and we might enter upon the era of *Americans—a race of flying men.*—E.T.A.

AIRPORTS AND AIRWAYS

Iola, Kans., News

By Paul Neff

B. T. Barber and Frank McCarthy, sponsors of the Iola field, have erected a sign, "Visiting Aviators Always Welcome—Sane Flying is Safe—No Stunting Over This Field."

• • •

Harry Crewdson's Standard was blown away last week in a high wind storm, breaking his prop and a wing spar. He has had it repaired and is in the air again.

• • •

Clarence Clark has accepted a position with the Standard Aircraft of St. Joseph, Mo.

• • •

Phil Wachtell left for Omaha, Neb., to take command of an LS5.

• • •

Henry King of Kings Flying Circus stopped over last week on his way north.

• • •

Frank McCarthy has his Ford-motored ship on the field now.

• • •

Ed Gunn washed out the JN4D that he bought from B. T. Barber.

• • •

Ed. Butts, commercial flier, was instantly killed at Coffeyville when his motor died while flying at an altitude of 100 ft. along a high bluff. He got the ship on the ground but rolled over a 100 ft. cliff to his death. Butts was a lieutenant in the flying corps during the war.

Cleveland News

By Cy Caldwell

H. B. Shaver, Assistant Superintendent of the Eastern Division of the Air Mail, when interviewed on July 23, stated that of the emergency landing fields between Cleveland and Chicago that are being equipped for night-flying, those situated between Bryan and Chicago will be in operation this week, while those between Cleveland and Bryan will be ready in the near future. To commercial pilots and others using this route the following information may be helpful in case of forced landings

There are 14 fields in all, including the permanent field at Bryan, spaced approximately 25 mi. apart, and all on or very near to the most direct route between Cleveland and Chicago, which is a straight line from Cleveland to Huron, and a straight line from Huron to Chicago. None of the fields are more than 2 mi. north or south of this line, and may be located easily by the 53 ft. steel towers by day and by the beacons on them at night.

The fields average 1600 ft. long by 650 ft. wide with good clear surfaces. They are located at Ridgeville, Huron, Vickery, Woodville, Waterville, Gerald and Bryan, in Ohio; and at Ashley, Walcottville, Goshen, Lakeville, La Porte and McCool, in Indiana; and at Harvey, Illinois.

Commercial fliers who have been crying for landing fields with all the abandon of those children who, according to the advertisements cry for Castoria, may dry their tears while en route from Cleveland to Rock Springs, Wyo., where this admirable system of lighted fields will end.

Details of fields west of Chicago cannot be furnished by the writer, who has always been afraid of going west for fear of getting bitten by the California Bug, and thus landing up as an extra at Hollywood. Someone once told him that his face would screen well in comedies, and he's been nervous about it ever since.

The night lighting of these fields consists of a five million candle-power G.E. electric beacon operated by a Delco plant. Pilots flying by these fields at night might bear in mind that the beacon is usually situated in the north east corner of the field, so that he may count on a good field southwest of any of the 14 beacons between here and Chicago.

The field is outlined by white boundary lights, varying in number according to size and shape of field; so that any pilot who fails to find a desired field lit up by a beacon and boundary lights might with reason be expected to spend a week in Washington without being able to pick out the Capitol.

Between the fields which are 25 mi. apart are acetylene lights placed at 3 mi. intervals along the line of flight, which flash on and off about once a second. These lights are situated in the centers of the best fields available, so that the night-flier in event of a forced landing between the emergency fields is assured of a clear field in the immediate vicinity of the lights. And in daylight these lights, mounted on a metal stand some 8 ft. in height, are easily visible and serve to indicate a field at least fairly safe for landing. The lights, by the way, are turned on and off automatically by the action of the sun's rays; so that they light up and flash on dull or foggy days. They require practically no care, as they may be filled to run 6 months at a stretch.

• • •

A weekly airplane inspection service is operated between Cleveland and Iowa City by Pilot Tex Marshall and Engineer I. D. Marshall, using one of the Curtiss Night-flying planes. "The Marshalls" are gaining fame as rapid-fire trouble-shooters, flying night and day to keep the lights functioning, reporting field conditions, and generally working to perfect the service. Their headquarters are at Maywood, Chicago, the center of their patrol.

• • •

Recent arrivals by plane at the Glenn L. Martin Field were Capt. B. E. Skeel and Lieutenant Moffett from Selfridge Field, Lieuts. James Doolittle and W. H. Brookley from McCook, and Lieut. W. H. Harris from Mitchel Field.

• • •

Famous last words: "I wouldn't be bothered carrying a parachute."

Selling the Big City

A permanent flying field which derives most of its support from carrying passengers must be located near a big city, as otherwise the number of people who desire to ride will soon become exhausted. There seems to be no way however of getting in touch with the population of a large city and as a result the small towns where the arrival of a plane is an event and quickly known have proved to be the best field for fliers. However one company which operated four passenger flying boats from a large city adopted the following scheme which proved very successful.

A ticket agent of the company found that nearly every large concern had some sort of an entertainment club or committee which arranged amusements for its employees. The chairman of this committee was offered a block of 24 tickets for $90.00 or at the rate of $3.75 for each passenger, with the understanding that the chairman should sell the tickets to the employees in groups of four and that preferably the whole party should fly on the same afternoon. The ticket agent only had to sell the chairman and the chairman sold the other passengers.

As every gypsy flier knows there is a good deal of mob psychology in getting passengers—if one comes forward, others follow. When a few out of an organization decide to fly the rest are easy, and the company who tried the scheme got over three hundred passengers out of one organization. The rate must necessarily be low but the volume of business and filling the plane on each trip more than makes up for this.

Annual Conference of the F.A.I.

The annual meeting of the F.A.I. was opened in Paris on June 22. M. Laurent Eynac, the French Secretary of Aeronautics, presided. Belgium was represented by Mr. Jacobs; England by Colonel O'Gorman; Holland by Mr. Van den Berch; Spain by Ruiz Ferry and the United States by Mr. Lahm. The delegates visited several airdromes, listened to a variety of speeches and attended a lunch.

Two requests from Belgium concerning the method of measuring the volume of balloons and the coordination of wireless information were accepted. The assembly also adopted a request of the United States to allow speed records over a long course to apply as records for any portion of the course longer than 3 km. The meeting turned down a proposition that speed records with refueling in flight should be allowed only over a distance greater than 2,000 km. Two requests on the part of France concerning spherical balloons and speed courses for flying boats were also adopted.

On the next day the conference decided to entrust the organization of a contest for automatic timing to the Aero Club of France, to admit the Aero Clubs of Lebanon and Syria, to create two new observatories in Holland and Sweden and to create a great gold medal which would yearly be given to the man who accomplished the best aeronautical performance of the year. In the afternoon the assembly adopted a request for a more accurate registration of records.

On the last day reports were read by the medical and legal commissions. The latter resulted in a request to the French government for the calling together of an international conference to study insurance with relation to aerial transportation.

The assembly closed by adopting certain requests of the Mapping Commission for the adoption of international maps.

The Great Lakes Airways, Inc.

The new flying service of the Great Lakes Airways, Inc., at Erie, Penna., has obtained an excellent start in passenger carrying and air photography. During its first four weeks of operation 216 passengers were carried and considerable photographic business was developed.

A flying boat service is operated by the company between Erie and Long Point, Canada, a popular fishing resort, the trip consuming a half hour compared to eight hours by boat and 20 hr. by train around the lake.

On July 12 an opportunity came to the new service to demonstrate the utility of the airplane in emergencies. A telephone call was received that a male passenger wished to fly from Long Point to Erie in order to reach the bedside of his son who was ill in Akron, Ohio. A Curtiss Seagull was immediately despatched across the lake, arriving at Long Point, Canada, at dusk. The return trip with the passenger was made in darkness and the Seagull arrived at Erie without incident at 10:15 p. m. As a result the passenger was able to reach his son in Akron 22 hr. earlier than by any other means of transportation. The early presence of the father had much to do with the boy's recovery, according to a later report from the passenger.

R. W. Griswold, President of the Great Lakes Airways, Inc., has given AVIATION an account of the flight of the company's first ship, a Curtiss Seagull, from Port Washington, Long Island, to Erie, Penna., which contains several items of interest to fliers.

With W. F. Sullivan at the controls and Griswold as passenger, the Seagull took off from Port Washington on June 21.

The route took the fliers up the Hudson River to Troy, N. Y., and from that point west over the Erie Canal to Oneida Lake. From that lake they continued via the canal west to Rochester where a landing was made on the Genesee River. This part of the flight was completed in a sixty mile gale. According to Mr. Griswold the Seagull was the first flying boat to land within the city of Rochester and the crowds which greeted them reminded the fliers of the old days in the flying game.

"A bit of a thrill" was experienced in getting out of the Genesee River "as its course is none too straight." The trip was completed on June 25 by a nonstop flight of 3 hr. 10 min. over the Erie Canal from Rochester, N. Y., to Erie, Penna. During the trip from Port Washington stops were made at several points on account of rain storms or darkness or for gas and oil.

The Erie Canal proved quite satisfactory to fly over at an altitude of at least 2,000 ft., with a plane of the Seagull type, but the fliers point out that no one should attempt the trip in a cross wind, as the canal is only 80 or 90 ft. wide in places.

Flour Co. Installs Sperry Beacon

The Washburn Crosby Co. recently purchased one of the 500,000,000 candle power searchlights known as the "Sperry Beacon," manufactured by the Sperry Gyroscope Co., New York. This light, the largest ever brought into the Northwest, has been erected on the top of the Gold Medal flour receiving elevator, 200 ft. above the ground. The beam, reaching into the sky, is visible for many miles around Minneapolis, and serves as a guide for both motorists and night fliers on their way to the city.

From motor boat to plane. Floyd Parsons doing his weekly thriller off Coronado Beach, Los Angeles. Frank Scheltz is piloting the Jennie

The beacon, which has been described in AVIATION, is the same type recently placed at the stops along the route followed by the Air Mail Service fliers in their trip across the continent. With its carriage it weighs 3,000 lb. The lens is 3 ft. in diameter.

The light was purchased to advertise both Minneapolis and Gold Medal flour in this territory, but Washburn Crosby Co. feels that it may be utilized by the Government or others interested in night flying. With this in view, they have notified the Airways Division of the War Department that the services of the light will gladly be placed at the disposal of the Government any time they see fit to use it in this district.

George (Buck) Weaver, Aviator

George (Buck) Weaver, an aviator, died of heart disease on July 29 at his home in Lagrange, Ill. A flier since 1910, his friends estimated he had flown 1,000,000 mi. but he never had been in a serious accident. He left a widow and one son, George Weaver, Jr.

Air Violator Arrested

The first aviator arrested for violating New Orlean's new air traffic ordinance was taken into custody in that city recently. The ordinance prohibits stunt flying over the city at an altitude of less than 1,000 ft.

An airman attached to a flying circus did a few loops and other tricks over the business section of Canal street and when he landed a policeman was waiting for him.

UNITED STATES AIR FORCES

U. S. ARMY AIR SERVICE

Army Air Orders

Sec. Lt. Alexander George Greid, A.S., upon expiration of leave, from Vallejo, Cal., to A.S. Prim. Fly. Sch., Brooks Field.

Following officers, A.S. Off. Res. Corps, to active duty, Langley Field, reverting to inactive status June 30, 1925: First Lt. William Terrell Atkinson, Kansas City; First Lt. Lewis Love Bowen, Omaha; First Lt. Wayne Sanger Green, Brooklyn; First Lt. Glenn Paul Rodgers, Indianapolis; First Lt. William Sidney Wilson, jr., Dotham, Ala.; Sec. Lt. Harry Joseph Brady, New York; Sec. Lt. John Ayers Collins, Bristol, Va.; Sec. Lt. James Joseph Welker, Glenhead, N. Y.

Special Orders, July 25th, amended to direct Sec. Lt. Eugene Barber Ely, A.S., to proceed from Washington, to Brooks Field.

First Lt. Bernard S. Thompson, A.S., San Francisco, to temporary duty Com. Off., Crissy Field, upon expiration of which to sail on transport from San Francisco, Aug. 21, for N.Y.C.

Capt. William B. Wright, jr., A.S., Mass. Inst. of Tech., upon expiration of temporary duty and leave, to Kelly Field.

Capt. Ivan Snell, Inf. trans. to A. S. with rank, to remain in present duties.

Maj. John H. Jouett, A.S., Kelly Field, upon completion of training, to Washington for duty in Office Ch. A. S.

Spec. Orders May 12 amended to direct David S. Seaton, A.S., to proceed to Kelly Field.

Sec. Lt. Clement A. McCalley, A.S., Brooks Field, to Fort Sam Houston, reporting to Col. Herbert A. White, Judge Advo., Pres. Arm. Ret. Bd., for examination, upon completion to return to place of receipt of original order.

Capt. Edw. Bowman Lyon, A.S., promoted to Major, effective July 1.

Capt. William B. Mayer, A.S., McCook Field, to Mass. Inst. Tech., Boston, for two years instruction.

First Lt. Harold R. Wells, A.S., McCook Field, to Mass. Inst. Tech., Boston, for two years instruction.

Capt. Robert Edmonston Ellis, A.S., Off. Res. Corps, to active duty from McCook Field, to Washington, reporting to Ch. A. Serv., and reverting to inactive status Aug. 11.

Following officers to active duty at Washington, with Ch. of A. S., from points indicated, reverting to inactive status Aug. 15: Maj. David Breed Lindsay, St. Petersburg, Capt. John Kane Mills, Hackettstown, N. J.; Capt. Robert E. Lee Murphy, Lexington, Ky.

First Lt. James B. Carroll, A.S., Org. Res., Kansas City, to Registrar Harv. Graduate Sch. of Bus. Admin., Cambridge.

Army Entries for Dayton Races

The following tentative Army selections for the International Air Races are announced by the Chief of Air Service:

Liberty Engine Builders Trophy, Oct. 2, Entries, 10 DH's. Pilots, Lt. R. J. Brown, Jr., Boston, Mass., Lt. L. V. Beau, Jr., Bolling Field, Lt. C. W. Steinmetz, Bolling Field, Lt. E. B. Bobzien, Chanute Field, Lt. J. B. Haddon, Brooks Field, Lt. R. D. Knapp, Maxwell Field, Lt. C. A. Cover, Fairfield, Maj. C. L. Tinker, Ft. Riley, Lt. A. E. Simonin, Moundsville, Md., Lt. D. G. Duke, O.C.A.S., Lt. Rex K. Stoner (Alternate) Langley Field, Lt. L. A. Walthal (Alternate) Fort Bragg.

Dayton Chamber of Commerce Trophy. Oct. 3, entries, 6 Martin Bombers, 1 Curtiss NBS4. Pilots: Lt. H. D. Smith, Langley Field, Lt. G. C. Kenney, McCook Field, Lt. J. D. Barker, Phillips Field, Staff Sgt. L. P. Hudson, Phillips Field, Lt. C. F. Woolsey, Brooks Field, Lt. Hez McClellan, Brooks Field, Lt. D. M. Meyers, Phillips Field, Lt. D. J. Canfield, (Alternate), Kelly Field.

John L. Mitchell Trophy. Oct. 4, Pursuit type planes of 1st Pursuit Group; nominations to be received from Selfridge Field.

Pulitzer Trophy. Oct. 4, entries, 1 Navy Curtiss Racer, 2 Army Curtiss Racers. Pilots: Lt. Alex Pearson, Jr., McCook Field, Capt. Burt E. Skeel, Selfridge Field, Lt. Wendell H. Brookley, McCook Field, Lt. H. H. Mills (Alternate), Fairfield.

No Delay for Entertainment

The Chief of Air Service has received a cablegram from Lieut. Lowell H. Smith, Commandant of the World Flight, in which he urgently requests that no entertainment for the members of the flight be arranged until after the Pacific Coast is reached and the journey around the world is entirely completed. This recommendation is made in order that the Flight across the United States may be made as rapidly as possible, to minimize the chances of failure on this last part of the route and prevent the personnel from relaxing their efforts before their task is done. On their way around the world, Lieutenant Smith and his companions have had to decline many offers of entertainment in the countries through which they have passed and have endeavored to avoid any unnecessary delay.

Sergeant Kelly Exceeds Lieut. McCormick's Record

The 91st Observation Squadron of Crissy Field, now temporarily stationed at Rockwell Field, Coronado, Calif., has a flier whose time in the air for twelve calendar months surpasses the record of 630 hr. 25 min. held by Lieut. H. T. McCormick of Brooks Field. The Commanding Officer of the 91st, Capt. Thomas J. Hanley, Jr., submits the following in this connection:

"One of our enlisted pilots, Staff Sergt. Fred Kelly, has flown 31 hr. 15 min. in excess of Lieutenant McCormick's time during twelve calendar months or for the Fiscal Year July 1, 1923 to June 30, 1924, computing his actual time piloting aircraft. Computing the man-hours Staff Sergeant Kelly has flown during this period he has spent 76 hr. 20 min. in government aircraft in excess of Lieutenant McCormick.

Summary of the flying time of Staff Sergt. Fred Kelly, 91st Obs. Sqn., for the Fiscal Year:

July 1, to Sept. 7, 1923,—91st Obs. Sqdn. Dec. 26, 1923, to June 30, 1924—91st Obs. Sqdn.

Aircraft hours as pilot	441:05
Man hours as observer	45:05
Total	486:10
Sept. 13 to Dec. 19, 1923, D. S. Brooks Field	
Aircraft hours as pilot	220:35
Total	706:45

U. S. NAVAL AVIATION

Naval Reserve Air Activities

The Aviation Division, Third Regiment, Ninth Naval Brigade, United States Naval Reserve Force located at Cleveland, Ohio, will finish its flight training activities for the training season by sending the last class of student naval aviators to the U. S. Naval Reserve Air Station, Great Lakes, Ill.

Ground school classes are being held every Thursday evening in Central Armory, Cleveland, Ohio, and the same course of study as given at the U. S. Naval Air Station, Pensacola, Fla., is being followed.

The Commandant of the Ninth Naval District has ordered the following officers and students of the Cleveland Aviation Division to report to the U. S. Naval Reserve Air Station,

Great Lakes, Ill., Aug. 15 for flight duty: Ens. Richard Raymond Palmer, U.S.N.R.F.-5, commanding officer of the division. Ens. Raymond G. Sherrick, U.S.N.R.F.-6.

Student Naval Aviators for preliminary flight training in Seaman 2 class, U.S.N.R.F.-6: Clifford J. Leisy, Samuel B. Homer, Everett L. Foote, Marvin F. Stevens, Edward E. Scott and Clyde W. Champness.

Naval Air Orders

Lt. Joseph W. Gregory, det. Off. Chg. Navy Rectg. Sta., Minneapolis, to temp. duty under instr., Nav. A. Sta., Pensacola.

Lt. Spencer H. Warner, det. Bu. Aero., Nav. Dept., to Nav. A. Sta., Pensacola, inv. flying.

Lt. Joseph J. Clark, det. Nav. Acad., Annapolis, to temp. duty under instr., Nav. A. Sta., Pensacola.

Lt. Gordon Rowe, det. Bu. Eng., Navy Dept., to temp. duty, under instr., Nav. A. Sta., Pensacola.

Lt. (jg) John F. Crowe, det. U.S.S. Hopkins, to temp. duty under instr., Nav. A. Sta., Pensacola.

Lt. (jg) Maurice E. Curtz, det. Nav. Training Sta., N.O.B., Hampton Roads, to temp. duty under instr., Nav. A. Sta., Pensacola.

Lt. (jg) Stanley J. Michael, det. U.S.S. Melvin, to temp. duty under instr., Nav. A. Sta., Pensacola.

Lt. (jg) John F. Reese, det. Nav. A. Fact., Nav. Yd., Phila., to temp. duty under instr., Nav. A. Sta., Pensacola.

Ens. Robert E. Blick, det. U.S.S. Bruce, to temp. duty under instr. Nav. A. Sta., Pensacola.

Ens. James V. Carney, det. U.S.S. La Vallette, to temp. duty under instr., Nav. A. Sta., Pensacola.

Ens. Charles W. Crawford, det. U.S.S. Mercy, to temp. duty under instr., Nav. A. Sta., Pensacola.

Ens. Melville E. Eaton, det. U.S.S. Cincinnati, to temp. duty under instr., Nav. A. Sta., Pensacola.

Ens. Francis B. Johnson, det. U.S.S. Litchfield, to temp. duty under instr., Nav. A. Sta., Pensacola.

Ens. Albert K. Morehouse, det. U.S.S. Maryland, to temp. duty under instr., Nav. A. Sta., Pensacola.

Ens. Joe E. Rucker, det. U.S.S. Stoddert, to temp. duty under instr., Nav. A. Sta., Pensacola.

Ens. Henry L. Shenier, det. U.S.S. Sirius, to temp. duty under instr. Nav. A. Sta., Pensacola.

Ens. Ralph H. Wishard, det. U.S.S. Williamson, to temp. duty under instr., Nav. A. Sta., Pensacola.

Where to Fly

CALIFORNIA
Learn to Fly in San Diego—The City of a Thousand Planes
THE RYAN SCHOOL OF AVIATION
Offers ideal flying conditions all seasons. First class facilities and equipment. Opportunity to study latest type planes and construction. Complete flying and ground course at reduced rates for a limited time.

CALIFORNIA
VARNEY FLYING SCHOOL
Established since 1914
SAN MATEO SAN FRANCISCO

ILLINOIS
HEATH AIRPLANE COMPANY, Inc.
Oldest aeronautic establishment in U. S.
Airplane Supplies Flying School
2856 Broadway Chicago

ILLINOIS **PARTRIDGE, Inc.**
Aeronautical Instruction
Aero Club of Illinois Field. Chicago, Ill. *Write for Booklet*
Mail Address-- 430 S. Michigan Ave.

ILLINOIS **FLY THEM YOURSELF**
Jennies by the hour. Flying Instruction by the hour. Ex-Air Mail Pilots as Instructors. All size Ships and Motors. All year Flying.
YACKEY AIRCRAFT COMPANY
Flying Field, Chicago Air Park, 63rd and Cicero, Chicago, Ill.

ILLINOIS
MID-WEST AIRWAYS CORP.
MONMOUTH, ILL.
One of the four best fields in America
Thorough Flying Instruction Course by experts at lowest rate.
Passenger Flights to Points Near or Far

KANSAS
AVIATION ENGINEERING CO.
Popular Priced Light Airplanes
Flying Instruction and Advanced Shop Course
N. 7th & LINCOLN LAWRENCE, KANSAS
40 mi. from Kansas City on Victory Highway

MARYLAND
THE SKYSYNE CORPORATION
NIGHT & DAY AERIAL ADVERTISING
OFFICE 711 Keyser Bldg. Baltimore
Get our prices FIRST 3 Planes at your order
AIRDROME Logan Field Dundalk, Md.

MISSOURI
NICHOLAS AIRPLANE CO.
LEARN TO FLY WITH US
Canucks, Jennies, and Standard airplanes, parts, motor supplies, passenger carrying, etc. Flying field 1 mile from city.
MARSHALL, MO.

MISSOURI
ROBERTSON AIRCRAFT CORPORATION
Airplanes, Motors, Parts, Supplies; Shops and Hangars
ST. LOUIS FLYING FIELD
ANGLUM, MO.

NEW JERSEY
CHAMBERLIN-ROWE AIRCRAFT CORP.
Aerial Advertising, Photography, Passenger Carrying, and Flight Training
New York Air Terminal Hasbrouck Heights, N. J.

NEW YORK
Curtiss Exhibition Company, Garden City, N. Y.
Flying Fields—Garden City, Buffalo, N. Y.; Dallas, Tex.; Miami, Fla. Complete flying service including schools, aerial photography, passenger and fast cross country transportation to any point. *Machines presented to students who take flying course.*
WRITE FOR BOOKLET

NEW YORK
PORT WASHINGTON, LONG ISLAND
FLYING BOAT SCHOOL
Clifford Webster—Instructor
Curtiss Metropolitan Airplane Co., Inc.

OHIO **AKRON-CLEVELAND**
Flying School for students in Aviation. "Pay as you Learn."
Modern WACO Plane with high-lift wings.
Passenger Rides
Advertising
Photography
STOW AVIATION FIELD
Stop 53 Akron-Kent-Ravenna Car line, Rt. 1, Cuyahoga Falls, Ohio.
Hangars
Supplies
6 mi. northeast of Akron.

OHIO
DAYTON, OHIO
Supplies, Hangars, Shops and Field 1 Mile from Dayton limits.
JOHNSON AIRPLANE & SUPPLY CO.

PENNSYLVANIA
ESSINGTON SCHOOL OF AVIATION
Established 1915 Frank Mills, pilot
FLYING BOATS, SEAPLANES, AND SPARES
ESSINGTON (just west of Philadelphia), PA.

TEXAS
SAN ANTONIO AVIATION & MOTOR SCHOOL
MUNICIPAL FIELD
South of Town between two Government Fields
AIRPLANES, ENGINES, PARTS, SUPPLIES, SHOPS, HANGARS
City Office, 509 Navarro Street San Antonio, Texas

Aviation's Rich Subsidy

Copyright 1923, by The Goodyear Tire & Rubber Co., Inc.
Everything in rubber for the airplane
Airships and Balloons of every type and size

IN America aviation now enjoys a subsidy that cannot be bought with money. It comes from foremost members of the industries upon which aviation leans. It is the evidence of these manufacturers' sincere desire to speed the development of aerial transportation and defense.

The help of these eager concerns and individuals enables American "ships" and pilots to keep pace with those of other lands. Some of aviation's friends constantly work to improve metals, some are busy with alloys, woods, fiber compositions, fabrics and other essential materials.

Goodyear is concerned with rubber, and rubber-impregnated fabrics. More than that, too, for many valuable designs for mechanical parts of lighter-than-air craft originated at Goodyear. For the airplane, Goodyear provides all required types of rubber equipment, from tires to radiator hose.

The GOODYEAR-ZEPPELIN CORPORATION, a subsidiary of The Goodyear Tire & Rubber Company, holds the U. S. patent and manufacturing rights of Luftschiffbau-Zeppelin, *and is ready to build Zeppelin airships of advanced type for any requirement of commercial service or national defense*

GOODYEAR

AVIATION EQUIPMENT

Where ACCURACY is Vital

DAWN. The light breaks over the horizon, flooding the airplane after its record-breaking night of flight. The high places of the ground stand out, catching the level rays of the sun. Valleys emerge with roads, railroads, fields and towns.

It is then that the pilot's map is tested. **If the map pictures faithfully the country below, he orients himself — determines his location and course—almost instantly, and speeds on. If not, invaluable minutes or hours may be lost, before he is sure that he is guiding straight for his goal.**

Accuracy! That is why record flights are made by following RAND McNALLY Maps.

Write for detailed information.

RAND McNALLY & COMPANY
Map Headquarters
Dept. H 88
536 S. Clark Street, Chicago
270 Madison Avenue, New York
Branches:
Philadelphia . . Washington
Boston . . . Pittsburgh
Cleveland . Detroit . St. Louis
San Francisco . Los Angeles

The new VOUGHT UO-1 Spotting Seaplanes are the exclusive Aircraft Equipment of the Battleships and new Scout Cruisers of the U. S. Navy's Atlantic and Pacific Fleets

Chance Vought Corporation

Borden and Review Avenues

Long Island City, New York

The weekly issue of AVIATION that you miss,

because you are not a regular subscriber, may contain the article, news story, picture or advertisement which you could have used with profit.

If you are a Service or civilian flier AVIATION is an indispensable adjunct to your calling, because in each weekly issue it publishes more service and commercial flying news than appears in any monthly; and, more important, it is NEWS when it appears in AVIATION.

AVIATION is written and edited by a staff trained to the aeronautical viewpoint for the man who is definitely interested or engaged in aeronautics. It presents fully and accurately each week the latest news and technical developments.

Descriptions, photographs and drawings of the latest aircraft appear first in AVIATION and frequently in no other magazine.

For less than eight cents a week—Four Dollars a year—you will receive 52 issues of the only American weekly aircraft publication and the recognized trade authority.

A SPECIAL 1924 FLYING SEASON OFFER :

Pin a Dollar Bill to the coupon and we will enter your trial order for the next 13 issues.

The oldest American Aircraft Magazine

AVIATION

The only American Aircraft Weekly

AVIATION — 225 4th Avenue, New York.

Send me the next 13 issues of AVIATION. One Dollar to cover is enclosed.

_____

_____

A Suggested National Air Policy

That a National Aviation Policy is needed by the United States is obvious. To get such a policy in concrete form AVIATION *requested several thoughtful friends of aeronautical progress to make suggestive and constructive recommendations. Some of them are given below and will be printed each week with additions, omissions and such other changes as appear to be helpful toward the formulation of a sound national air policy. Readers of* AVIATION *and others can render no greater service to the cause of aeronautical progress than contributing their comments and suggestions.*

GOVERNMENTAL.

A continuing program of aircraft development both governmental and commercial.

A civilian, charged with championing a national air policy, is needed in the Government.

Aircraft committees in the House and Senate to hold aircraft hearings where civilians as well as government officials can express their opinions.

A detailed aircraft budget for all Governmental Departments, and an annual statement of all expenditures.

An experienced staff of flying officers at the head of all governmental air defense services.

Coordination of all procurement and experimental aircraft work of the government under one agency.

Limitation of government manufacture to repair of aircraft and specialized work that cannot be done by private firms.

The elimination of the duplication of aerial functions and facilities by government departments.

A country wide Air Mail system of trunk lines connecting the principal cities of the country.

Establishment of a National Airway System through cooperation of the Federal Government with States and Cities.

A national aircraft law that will regulate aviation, administered by practical pilots and experienced aeronautical engineers.

Membership of the United States in the International Convention for Air Navigation.

COMMERCIAL AIRCRAFT OPERATION.

Creation of commercial air lines by private enterprise or government subsidy.

Encouragement of participation by private companies in aircraft races and competitions.

Encouragement of the training of pilots by civilian schools.

Creating an Esprit de Corps among flying men all over the country by frequent gatherings at aviation meets.

INDUSTRIAL AIRCRAFT CONSTRUCTION.

Recognition that a sound aeronautical industry is a prime necessity of our National Defense.

An active industrial association that will coordinate the aircraft industry and defend it from attack.

Encouragement of the designing of new types of aircraft by manufacturers by allowing them to retain their proprietory rights.

Concentration of manufacturing firms on specialized types of army and navy aircraft.

Encouragement of research by constructors, universities and other agencies as well as by the government.

Encouragement of an annual design competition for commercial aircraft.

CIVILIAN.

A national aeronautical organization composed of public spirited citizens that will take a strong position of leadership on national aeronautical policy.

An Annual Aviation Week during which the country will think of aerial progress.

The formation of local aero clubs by fliers for the purpose of stimulating flying in all localities.

Encouraging the public to fly and patronize the air mail and transport facilities.

The Aircraft Service Directory

WHERE TO PROCURE EQUIPMENT AND SERVICES

Rate of Climb Indicator

PIONEER INSTRUMENT COMPANY
MAIN OFFICE AND FACTORY BROOKLYN NEW YORK
WASHINGTON 441 STAR BUILDING
PARIS 97 BOULEVARD SAINT MICHEL
SAN FRANCISCO 15 SPEAR STREET

BELLANCA
6 Seater with 90 hp. OX5
8 Seater with Hispano
2 Seater with motor cycle engine
COLUMBIA AIRCRAFT CORPORATION
FARMINGDALE, L. I., N. Y.

OSTERGAARD AIRCRAFT WORKS
4269 N. Narragansett Ave. Chicago, Ill.
Finest guaranteed Acetate of Nitrate Dope per gallon $2.50, Goggles $3.00, Spark Plugs 25c, Spar Varnish $5.00 per gallon, Hantsch-Ostergaard Light motor, 36 lb., 12-15 h.p. $750.00. Blue print of 75 m.p.h. Aerodrive sled 50c, Sled complete $495.00
SPRUCE, ALUMINUM, STEEL, PLYWOOD
Everything for any aircraft *State specific needs*

LUDINGTON EXHIBITION COMPANY
Sport Farman Ships
Aerial Taxi Service
Exhibition Flying
Office: 810 Atlantic Bldg. PHILADELPHIA
Flying from field of G. S. Ireland PINE VALLEY, N. J.

—PETREL MODEL FIVE—
—Super-Performance In the 3 Seater Class—
—Seaplane or Landplane to Suit Your desires—
—Air Cooled or Water Cooled Motors—
Details on Models Four & Five gladly furnished on request
HUFF DALAND AERO CORPORATION
OGDENSBURG, N. Y.

NEW HS2L FLYING BOATS
in original crates
AND MF BOATS
$600.00
GULF COAST AIRLINE
515 Whitney-Central Bldg. New Orleans, La.

EDWARD P. WARNER
Consultant in Aeronautical Engineering
and
Commercial Operation of Aircraft.
Mass. Institute of Technology
Cambridge, Mass.

PHENIX DOPES
NITRATE, ACETATE AND PIGMENTED
Also Special Dopes for Unusual Purposes
Low Prices and Quick Delivery.
PHENIX AIRCRAFT PRODUCTS CO.
WILLIAMSVILLE, N. Y.

New SEAGULLS $2600.00, New K6 ORIOLES $2200.00, New JN4Ds $1000.00, STANDARD without motor $600.00, Used STANDARD K6 three-seater $1500.00, Used JN4Ds $400.00 and up, Used OX5 motors $50.00 and up, New OX5 motors $175.00, Used K6 motors $250.00 and up, New K6 motors $1000.00.
Before purchasing spare parts get our prices.
G. S. IRELAND
CURTISS FLYING FIELD GARDEN CITY, N. Y.

PARAGON PROPELLERS
BETTER THAN EVER
American Propeller & Mf'g. Co.
Baltimore, Maryland

Yackey Aircraft Co., 818 Desplaines Ave., Forest Park, Ill.
S.V.A. Dual control Liberty 6 motor, $1250.00. Used JN4-D, $350.00 and up. Used Canuck, $425.00 and up. Rebuilt Canucks, $700.00 and up. New Canuck, $1150.00. 39B Aeromarine Land or water, $575.00. C6 Standard, New wings overhauled motor, $1050.00. Lincoln Standard five placed fair condition, $1200.00. 4 placed DH9 less motor, new covers, $450.00. 3 placed Avroe 110 Le Rhone new, $950.00. 3 placed Lairu OX5, good shape, $1275.00. TM Scouts without motor S4C new, $450.00. OX5 Yackey Sport 2 placed T.M., $1475.00. 5 placed Breguets, Renault motor, $4750.00. Parts for Avroes, T.M.'s Breguets, S.V.A.'s. New Shock cord guaranteed—Resistal Goggles. Write for new price list.

Army Surplus Airplanes and Supplies
Standard J1—OX5, OXX6, and Hispano 150 motored, $750. Curtiss JN4D—OX5 motored, new and used, $400. Avro and Thomas Morse Scouts, new and used.
Motors, Hispano 150, Hispano 220, Curtiss OX5 and OXX6.
Wings, single or sets—Standard, Curtiss JN4, or Canuck. Special bargain tail units; Curtiss JN4 and Canuck rudders, $4. Propellers, parts, dope, linen, tires, wheels, tubes—immediate shipment. Resistal goggles, $3; special price larger orders.
Price List on Request
Marvin A. Northrop, 200 Builders Exchange, Minneapolis, Minn.

MATTHEW B. SELLERS
Consulting Aeronautical Engineer
Ardsley-on-Hudson, N. Y.

Who's Who in American Aeronautics
An Aeronautical reference book containing 800 biographies and valuable information not heretofore brought together.
ONE DOLLAR PER COPY
GARDNER PUBLISHING COMPANY, Inc.
225 Fourth Ave. New York

AIRCRAFT SERVICE DIRECTORY
CONTINUED

OX5 STANDARDS — $575.00
READY FOR DELIVERY: ASSEMBLED & TEST-FLOWN
STANDARD J-1 WINGS, CURTISS & LAWRENCE ENGINES;
COMPLETE STOCK OX5 PARTS, RADIATORS & ACCESSORIES
— *WRITE FOR PRICE LISTS* —
TIPS & SMITH
P. O. Box 153 (1505 Washington Ave.) HOUSTON, TEXAS

Airplanes, Flying Boats, Motors and Supplies. Parts for JN4D Canuck, J-1 Standard, OX5, OXX6 Hispano and Liberty. Fireworks:—Spectacular Night Plane Display $48.; Flash Bombs, good for day or night $4.; Flag Bombs $3.75; huge Smoke Trail $3.50. Non-shatterable Goggles:—NAK Wide-vision $4.85 or Jumbo $3.50. New 25 x 4 Cord Casing $4.; Slightly Used Casing $3.; Moderately Used $2.; New Tubes $2.; Altimeter $5. JN4D or J-1 Gas Tank Gauge $5.; Rotary Map Case—Rotate as Trip Progresses $3.50. JN4D Gas Tank with Gauge $15. Special:—150 H.P. Hispano Motored 3-place Standard, fair shape, $1050.
716 West Superior FLOYD J. LOGAN Cleveland, Ohio

WRIGHT E-3 ENGINES
180-240 H. P.
SPECIAL OFFER
Due to an over run of parts for E-3 engines we can make a very attractive special price on this model of the Wright Hisso. This E-3 model ran 250 hours *full throttle* at 1800 r.p.m., pulling over 200 H. P. for practically the entire test, during which the valves were ground only once, at 125 hours. The test was continued for over 500 hours *full throttle*, with same bearings, crank, gears, rods and pumps. All remained perfect. Kelmet bearings and Thompson silcrome tulip valves are supplied on these E-3's, the same as on our latest models. We can equip these engines, without extra charge, with high compression pistons for racing and we will guarantee 240 H. P. but it can be expected that the engines will pull considerably above this guarantee. These are new engines and will be given the regular Government test schedule on our dynamometers before shipment.
WRIGHT AERONAUTICAL CORPORATION
PATERSON, N. J. U. S. A.

COMMERCIAL AIRPLANES
THAT ARE PAYING PROPOSITIONS
Three and five place machines
Hiso motors and parts. Standard parts and equipment.
Write for catalog.
LINCOLN STANDARD AIRCRAFT CORP.
LINCOLN, NEBR.

LIBERTY "12" AVIATION ENGINE PARTS
ASSEMBLIES, SPECIAL EQUIPMENT AND
TOOLS ARE CARRIED IN OUR STOCK
ROOMS FOR IMMEDIATE DELIVERY
JOHNSON MOTOR PRODUCTS INC.
518-522 WEST 57TH STREET NEW YORK, N. Y., U. S. A.

FOREIGN AIRPLANE ENGINES
LOW PRICES

100	Benz	220-30 H.P.	$450
25	Beardmore	160 H.P.	400
100	Mercedes	260 H.P.	500
200	Fiat A-12	250 H.P.	350
150	Fiat A-12-bis	300 H.P.	600

Complete stock of parts for these motors
DETROIT MARINE-AERO ENGINE CO.
409 Connecticut Ave. Detroit, Michigan

JULY 1909 -- 15 YEARS AGO
Bleriot made first flight across the English Channel.
During this pioneer period Hamilton carved propellers by hand.
Today—the Channel is crossed frequently daily.
Today—Hamilton Propellers are manufactured in quantities in the most complete and only exclusive propeller plant in America.
Get our new low prices now.
Hamilton Aero Mfg. Co., Milwaukee, Wis.

CLASSIFIED ADVERTISING

10 Cents a word, minimum charge $2.50, payable in advance. Address replies to box numbers, care AVIATION, 225 Fourth Ave., New York.

FOR SALE: Two Gnome 50 hp. Motors, one new and complete, other used but very serviceable. Price for the two, sixty dollars. Box 301, AVIATION.

A bargain. Jennie in A-1 condition with OXX6 engine and spare OX5. Robt. Lee, 10 Warren Street, New York.

FOR SALE: Jennie good condition OX5 Engine, 50 hours. $500.00. Ludington Exhibition Co., Inc., 810 Atlantic Building, Philadelphia, Pa.

OX5 Curtiss Motors (used) minus carburetors and magnetos $50.00, f.o.b. Los Angeles, 25% with order, balance sight draft against B/L (crating extra). Address: Box 1152, Arcade Station, Los Angeles, Cal.

WANTED—One or more 6 cylinder, 60 hp. Anzani engines, must be in excellent condition. McCarthy Aeronautical Engineering Co., 410 Umatilla Street, S.E., Grand Rapids, Mich.

FOR SALE—Two Loening Air Yachts (400 h.p. Liberty Motors)—one of these machines has flown 120 hours, price complete with electric starter, Four Thousand Dollars ($4000.00).
The other Air Yacht has only had about 30 hours of flying, and is in practically brand new condition; price Seven Thousand Dollars ($7000.00).
These machines are at present disassembled at Hangar, but on deposit of One Thousand Dollars ($1000.00) will be assembled and made ready to fly with all launching facilities, etc., available.
Address all inquiries to—**New York-Newport Air Service, Inc.,** 31st Street and East River, New York City.

FOR SALE: Jennie minus wings $300.00 or trade for Marmon or Cadalac Roadster. O. K. Blake, Morgantown, West Va.

Reliable pilot wishes to fly ship on commission or salary basis. F. Samuelson, General Delivery, Olin, Iowa.

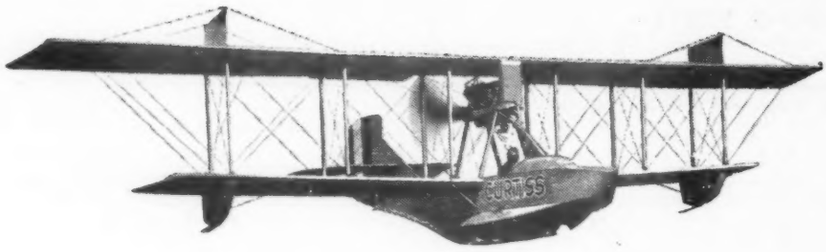
FOR SALE: Liberty aircraft engines, 400 hp., required spare parts same engines. Agents wanted. Aug. Michel Arsenal, Strasbourg, France.

FOR SALE: Cheap, Liberty six super compression motor, perfect condition. R. H. Richart, 602 N. Court St., Sullivan, Ind.

SALE OR TRADE: New five passenger Standard Hispano Motor, a money maker. Trade on good Jennie. H. H. Emrich, 6 Dale Apartments, Neal & Main, Dayton, Ohio.

Will Sacrifice brand new three to four place Aeromarine "60" cabin flying boat. Natural wood finish and in perfect condition. Built within last 18 months. Equipped with 180 h/p Hisso. Robert Lee, 10 Warren Street, New York.

FLYING BOAT OPPORTUNITY



CURTISS SEAGULL

THREE-PLACE 150 H.P.

FLYING BOATS

$2,600.00

BRAND NEW SET UP AT PORT WASHINGTON READY TO FLY AWAY

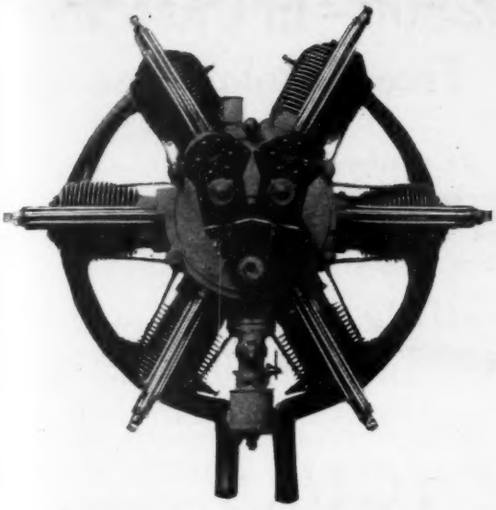
A good live aviator could clear the price of one of these ships in three weeks at any average beach-hopping location. With new ships at the above price depreciation is practically nil, and we know of similar machines being in operation over four years.

ONE USED MACHINE WITH NEWLY OVERHAULED MOTOR, $1,200.

Curtiss Metropolitan Airplane Company

Port Washington - Long Island - New York

Anzani Aircraft Motors

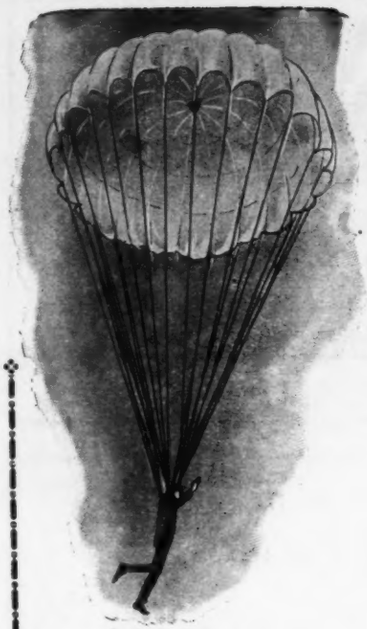


Type 6A3 70/80 H.P. Dual Ignition

Other 1924 Types from 10 to 120 H.P. for commercial airplanes and moto-aviettes.

WALLACE KELLETT CO. INC.

Atlantic Building Philadelphia.



Patented 1921

The Hardin Parachute

Life Pack or Exhibition.

Instantaneous action in opening.

Easy riding.

Dependable at all times under all conditions.

Write for literature and prices.

Hardin Parachute Co., Inc.

1706 Queen Ave. No. Minneapolis, Minn.

FOR SALE

HAMMONDSPORT CURTISS OXX6 MOTORS COMPLETE WITH TOOLS

Brand New—Immediate shipment in original crates

$250. each

F.o.b. Baltimore

Wire Orders Only a few left

HS2L FLYING BOATS

Brand New and in original crates immediate shipment—FOB Norfolk

Large Stock of Almost Anything You Require in Curtiss OX5 and OXX6 Spare Parts.

SOUTHLAND JOBBING HOUSE

P. O. Box No. 676 NORFOLK, VA.

THE HIGHEST GRADE OF NEW

FLYING BOATS

OF HS2L TYPE ON THE MARKET

with or without power plant, completely assembled ready for flight, or packed in boxes ready for shipment, at our Baltimore warehouse

—Guaranteed 100% Complete—

For purchaser of unassembled boats, liberal space for assembly will be allowed free of charge

TERMS CAN BE ARRANGED

Write Department E

or

come down and look them over

AMERICAN AIRCRAFT INC.

BOX 104, STATION F BALTIMORE, MD.

DOPES

PIGMENTED DOPES

VARNISHES ENAMELS

TITANINE

Reg. Trade Mark

MADE BY

TITANINE, Inc.

UNION, UNION COUNTY, N. J.

Contractors to U. S. Government

PLYWOOD

Water Resistant Panels

Made According to

Government Specifications

Any Size or Thickness

New Jersey Veneer Co.

Paterson, N. J., U.S.A.

The Weekly Issue of AVIATION That You Miss

because you are not a regular subscriber, may contain the article, news story, picture or advertisement which you should have used with profit.

If you are a Service or a civilian flier AVIATION is an indispensable adjunct to your calling, because in each weekly issue it publishes more service and commercial flying news than appears in any monthly; and, more important, it is NEWS when it appears in AVIATION.

AVIATION

The Oldest American Aircraft Magazine

The Only American Aircraft Weekly

ATTENTION FLIERS

$2500.00 in Cash Prizes

Free Gasoline and Oil

Prizes Guaranteed
By Bartlesville Chamber of Commerce

In addition to the prize money there will be valuable cups as prizes and a real opportunity to make money carrying passengers.

Wire or write at once for entry blanks and details

BARTLESVILLE-AERO-EXPOSITION-INC.

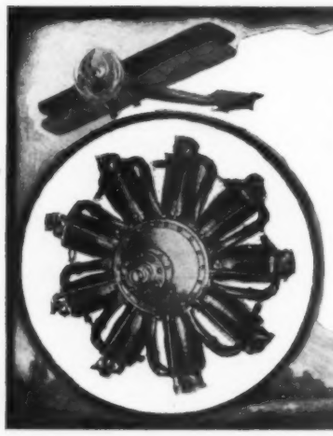
A NON-PROFIT ORGANIZATION FOR THE BETTERMENT OF COMMERCIAL AVIATION

BILLY PARKER—GENERAL MANAGER

BARTLESVILLE, OKLAHOMA

FIRST ANNUAL MEET

SEPT. 1 and 2, 1924



Perfect Tested Motors For Your Plane!

We have purchased these motors from the United States Government, together with a large quantity of spare parts. Every motor is perfect, having had a test run.

Now Is the Time To Get Ready!

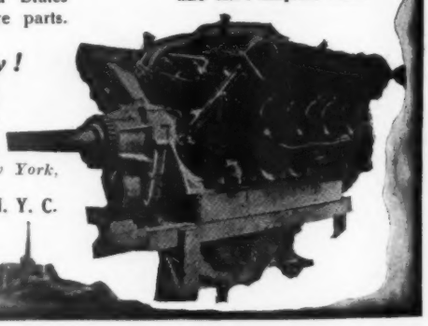
50 H.P. GNOME	$ 75
130 H.P. CLERGET	$100
160 H.P. GNOME	$ 50
80 H.P. LE RHONE	$ 50
220 H.P. HISPANO SUIZA	$250

Terms— 50% with order. All Motors F.O.B., New York, N. Y. Write or Wire Your Order Now!

DeNeal H. Samuel, Inc., Woolworth Bldg., Dept. B., N. Y. C.

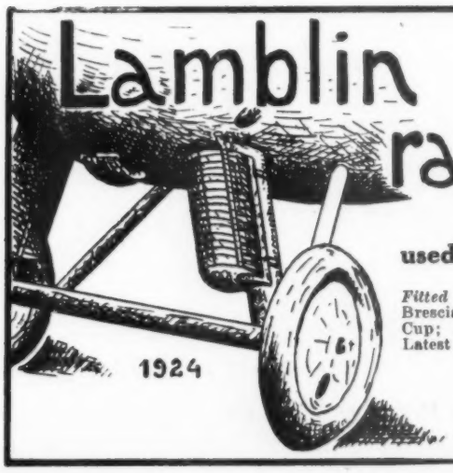
Phone: Whitehall 4588

220 H.P. Hispano-Suiza



Lamblin radiators

1922



used all over the world **on more than 10,000 aircraft**

Fitted to the winners of the following: Gordon Bennett Cup; Deutsch Cup, 1921; Circuit of Brescia; The Aerial Derby; Deutsch Cup, 1922; The British Speed Record; The Italian Grand Cup; Zenith Cup, 1923; Lamblin Cup; French Grand Prize for Transport Airplanes, 1923; Latest World's Altitude Record, Airplanes and Seaplanes, etc.

For particulars apply to

ETABLISSEMENTS LAMBLIN 36, BOULEVARD BOURDON, NEUILLY-SUR-SEINE, FRANCE

INDEX TO ADVERTISERS

A

Aircraft Service Directory..... 898 - 899
American Aircraft Co..... 901
American Propeller & Mfg. Co 898

B

Bartlesville Aero Exposition, Inc..... 902
Boeing Airplane Company..... 883

C

Classified Advertising..... 899
Columbia Aircraft Corporation..... 898
Curtiss Exhibition Company..... 884
Curtiss Metropolitan Airplane Co., Inc. 900

D

Detroit Marine-Aero Engine Co..... 899

G

Goodyear Tire & Rubber Co..... 895
Gulf Coast Airline..... 898

H

Hamilton Aero Mfg. Co..... 899
Hardin Parachute Co., Inc..... 901
Huff Daland Aero Corp..... 898

I

Ireland, G. S..... 898

J

Johnson Airplane Supply Co..... 882
Johnson Motor Products, Inc..... 899

K

Kellett, Wallace Co., Inc..... 901-903

L

Lamblin, Etablissements..... 902
Lincoln Standard Aircraft Corp..... 899
Logan, Floyd J..... 899
Ludington Exhibition Co..... 898

M

Martin, The Glenn L., Co..... 882

N

New Jersey Veneer Co..... 902
New York-Newport Air Service, Inc..... 899
Northrop, Marvin A..... 898

O

Ostergaard Aircraft Works..... 898

P

Phenix Aircraft Products Co..... 898
Pioneer Instrument Co..... 898

R

Rand, McNally & Company..... 895
Robertson Aircraft Corp..... 894

S

Samuel, De Neal H., Inc..... 902
Sellers, Matthew B..... 898
Southland Jobbing House..... 901

T

Tips & Smith..... 899
Titanine, Inc..... 901

V

Vought, Chance Corporation..... 896

W

Warner, Edward P..... 898
Where to Fly..... 894
Wright Aeronautical Corp..... 899-904

Y

Yackey Aircraft Co..... 898

Another

World's Record

for

FARMAN

On July 16-17th, the Farman single-motored 400 H.P. Transport with Farman 12 cylinder motor, piloted by Coupet and Drouhin, remained aloft, without refueling, for 37 hours, 59 minutes and 10 seconds, thereby establishing a new World's Duration Record.

Landing was made only on account of extremely bad weather conditions, with seven hours fuel remaining in the tanks.

Not only was the efficiency of Farman aircraft construction again conclusively demonstrated, in the performance of the plane, but the reliability and economy of the new Farman Aviation Motors was proven all that could be desired in this, the most difficult of all motor tests.

The Farman single-motored 600 H. P. Transport also holds the World's Altitude Record, carrying a useful load of 1000, 2000 and 3000 kilos.

American Representative

W. Wallace Kellett

Atlantic Building Philadelphia

THROUGH the entire history of aviation over a period of 20 years the Wright organization has maintained its high position.

Its leadership has been soundly built upon extensive research and intelligent engineering development, although its experience includes the manufacture of aeronautical equipment in extremely large quantities.

The Wright organization, ever mindful of its first achievement—the art of flying—continues to contribute each year its best ability and engineering experience to the advancement of flying.

WRIGHT AERONAUTICAL CORPORATION
PATERSON, N. J., U.S.A.

WRIGHT AIRCRAFT

"The Identification of Incomparable Service"

Navy ships equipped with Wright Air Cooled Engines flying in formation over San Diego, California